VIEW FROM RAMTOP

Many members have asked the big question of "how do other types of clubs differ from the average computer club". Well, I thought I would take this opportunity and answer such a simple question.

As many of you already know, prior to my involvement to the world of TIMEX and Sinclair (pre 1981), I was heavily engaged in the wonders of astronomy. While vacationing in Florida last December, I had the opportunity to visit my ol' club (The Saint Petersburg Astronomy Club) and participate in an "average" club observing session called a "Star Party". The following event took place near Brooksville on the night of the 30th thru the morning of the 31st, 1989.

The trip to Hickory Hill began around 5:30 pm after waiting for Dan Bricker (my astronomy buddy) to pick me up. Upon his arrival, I was disappointed to find that his old VW bus was not being used as our transport to the Hill as was the case in years past. Instead, Dan arrived in a plain, ordinary looking white van.

After saying howdie doodie, we were on our way. At this point I must tell you that since joining the U.S. Air Force and moving to CA in 1987, I have not seen or heard from Dan in almost three years. This also includes contact with the club as I had then resigned as SPAC Vice Presidency and dropped out of club activities.

So there I was, being driven up to a great observing site with a great old friend. Because I was only here on vacation, and hadn't brought any type of telescope (just imagine flying with one for a 3 week vacation) good ol' Dan saw to my needs and brought an extra one along. While enjoying the ride up we couldn't help but reminisce about the past, and of course Dan told me all the latest club news for my benefit.

Upon our arrival, we met up with another familiar face, former SPAC'er Ed Wright (who was visiting from Newport News, VA) who had driven up a new member, Joan Yancar. Before we started our all-night observing session, we decided to indulge ourselves with some delicious barbecue food in Brooksville. Again we told tales of famous times we had experienced in the past. After Ed and I had stuffed our faces with piled-high plates from the salad bar along with our main dish and giving the waitress a difficult time,

we rolled back out to Dan's van to join the others at Hickory Hill.

Once there, Dan introduced Joan and I to the 35 or so who were observing, while Ed bumped into some old friends in a tent-camper and proceeded to bury themselves in several bottles of homemade wine. Please believe me when I say that Ed was in high spirits when he emerged some time later. Joan and Dan were deep in conversation...actually Dan was in his "teaching mode" with Joan and several other late arrivals.

As for myself, I floated around observing through the many telescopes that were monstrous compared to the scopes from my days as a member. I had a personal viewing through a 25'(mirror) diameter, a 20', a 17.5', an award-winning 14.5' equatorial ATM design, and two different 10's.

I was extremely impressed with the 20 inch telescope. The design was inspired and built by Tom Clark and John Reeves of the Local Group of Sarasota-Bradenton. Costing under $6's, this scope did an exquisite job while viewing M46. The planetary nebula within the open cluster of stars stuck out like a sore thumb. A two inch 9mm Nagler eye-piece was used to view this. It was most breath taking.

After this great tour, I borrowed Dan's Astroscan 2001, all of his eyepieces except one, and climbed up the observing tower to perform my own personal study of the stars. I spent most of my time reviewing the wonders of the night sky that I had missed for years. Then I turned my attention to bright Jupiter. The planet was high overhead very near the zenith (the spot directly over head). I really had to position myself at an awkward angle in order to get a good view.

At first glance there appeared to be shadows on Jupiter. However, on closer scrutiny the small, almost black spots proved to actually be turbulence within the northern equatorial band. This was later confirmed by Dan's observation through his 10 inch Newtonian.

However, before Dan could get a real good view of Jupiter, he was having a little trouble with his telescope....Nothing serious, just things like missing eyepieces, excessive wobble, R.A. and Dec. motors running wild, and for some reason, the end-cap to Dan's scope kept finding itself back on top, along with eyepiece covers. Dan's problems were finally alleviated after 10 to 15 minutes of this discomfort. After being verbally chastised, Ed and I stopped jumping around Dan's scope and causing all the other mischief.

Unfortunately, 30 minutes later, clouds rolled in ending the observing. We quickly escaped from the cool night air for some hot cocoa in the club-house. Here ends our night.
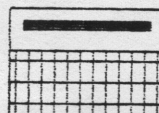
```
TT  TIMEXsinclair
II  user group
MM  News-Magazine
EE
LL  SUPPORT FOR:
II
NN  TIMEXsinclair's
EE  1000, 1500, 2068
ZZ
    Sinclair's
    ZX Spectrum+ 128K
    Quantum Leap (QL)

    Cambridge's Z88
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FRONT PAGE

PRINTED USING
sinclair QL
PROFESSIONAL
COMPUTER AND
THIS PROGRAM.

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DESK-TOP PUBLISHING
FOR THE SINCLAIR QL
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TIMELINEZ INFORMATION

THE WIDJUP Co.
REVISITED

Enclosed is a sheet which nearly completes the information needed to actually make and use expansion slots. This shows how economical clone parts fit together to make it possible for even tyros to have this power.

The only information still lacking is the details for making the WIDJUP primary adaptor and a description of how the TS2040 has its address completed so it doesn't respond to foreign I/O ports.

I have put on the market a new CAD program called CAD#3.B1 which works with LKDOS and EPSON compatible printers. It will be reviewed shortly, and has been beta tested with favorable results. This will be available as SHARE-WARE. The primary adaptor mentioned above is defined by files used by CAD#3.B1. These files are PUBLIC DOMAIN as well as any photo masters and independently produced adaptors. I will write another article filling in the missing information for the next issue.

In case you didn't notice, this is completely compatible with the bank switching system already described. In fact, it preceded it. In this way, one system doesn't kill others - a problem with most other available TS2068 expansions. LKDOS can remount to an expansion slot without losing any of its powers while another system like CP/M can temporarily take its place. Unusual bank switching systems like LKDOS cannot always be made compatible, but new versions can usually be made if they merit survival. LKDOS requires another logic gate to break into RE signal line, but even without that it works fine as long as you don't bank switch chunks 0 or 1. The present version of LKDOS cannot be turned off without this additional gate. A simple adaptor provides this gate and an edge compatible with the back-plane.

Similar adaptations work for other operating systems. Dock resident expansions simply require conversion to another bank so that dock space becomes available for "canned" user programs again. The dearth of user plug-and-go cartridges, in my opinion, has more than anything else led to the decline of the TS2068. I know there are a lot of programmers out there eager to show off their application programs. Now, with the expansion of the TS2068, the sky is the limit.

By the way, it might seem desirable to get one of these programmers to write a new article about cartridges. CAD#3.B1 makes producing them a snap!

THE WIDJUP Co.
1120 Merrifield S.E.
Grand Rapids, MI 49507
ATTN: William J. Pedersen

ZEBRA DISC
REBORN
BY
JACK DOHANY

INTRODUCTION
The ZEBRA disc system for the 2068 has been hard to get for some time. I now have a limited number of ZEBRA disc systems and components available. Please see the attached price list. NOTE: prices are subject to change.

GUARANTEE
All hardware I sell is guaranteed for 60 days, thus: replacement or full refund if you are dissatisfied. After 60 days, I will be happy to perform repairs or replacement at minimal cost.

TRADE-IN POLICY
If you already have a ZEBRA system, you are welcome (and encouraged) to trade in your old components, working or not. The value of your old components depends on their condition.

For example, you can trade in a working 16K controller for a guaranteed 64K controller with CP/M, and pay only $20.00 + shipping. The value of any non-working component is $10.00.

BUYING A WHOLE SYSTEM
Buying a whole system is quite simple: you order the components you want, and I will assemble them into a working system for you at no extra charge.

The MINIMUM components you need are these:
1. A 2068 computer (you probably have one)
2. The ZEBRA Interface (plugs on rear of 2068)
3. Power Supply (for Controller and Drives)
4. A Controller (16K or 64K)
5. One or more Disc Drives

OPTIONAL components:
6. A system cabinet type A or B.
7. Spectrum emulation for 2068.
8. A printer interface (you may have one)
9. A LINGEB board

Each of the above components is described in detail on next column.

NOTE: if you do NOT order a cabinet, then your components will be provided in "silver boxes" when and as possible, at no extra charge.

NOTE: appropriate documentation will be provided with whatever you purchase at no charge.

JACK DOHANY
438 WOODWARD WAY
ATHENS, GA 30606

ALL TMX DISC
MODULES MATCH
THE TC2068/48
DESIGN!

INTERFACE
UNIT

ORIGINAL TMX DISC
DRIVE SYSTEM

POWER
SUPPLY

DISC
DRIVE

CONTROLLER
UNIT
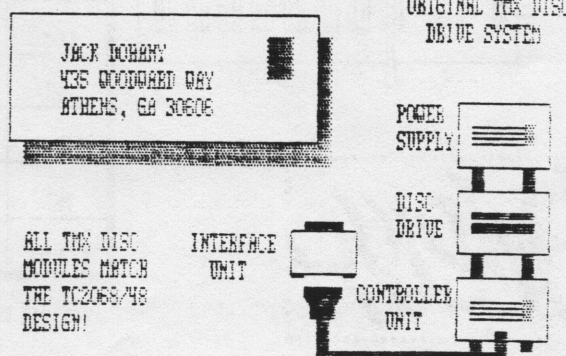
TS2068 BACK-PLANE EXPANSION SYSTEM STANDARD

IDC TAKE-OFFS

Left		Right
GND		GND
ERR		S/T
A7R		+15V
D7		+5V
NC		NC
SLOT		SLOT
D0	—o20 o—	GND
D1	—o19 o—	GND
D2	—o18 o—	$\overline{0}$
D6	—o17 o—	A0
D5	—o16 o—	A1
D3	—o15 o—	A2
D4	—o14 o—	A3
INT	—o13 o—	A15
NMI	—o12 o—	A14
HALT	—o11 o—	A13
MREQ	—o10 o—	A12
IORQ	—o9 o—	A11
RD	—o8 o—	A10
WR	—o7 o—	A9
BUSACK	—o6 o—	A8
WAIT	—o5 o—	A7
BUSREQ	—o4 o—	A6
RESET	—o3 o—	A5
M1	—o2 o—	A4
RFSH	—o1 o—	NC
EXROM		R
ROSCS	o4 o—	G
BE	o3 o—	B
IOA5	o2 o—	NC
SOUND	o1 o—	VIDEO
GND		GND

TS2068 BUS TO EVEREX EV-1085

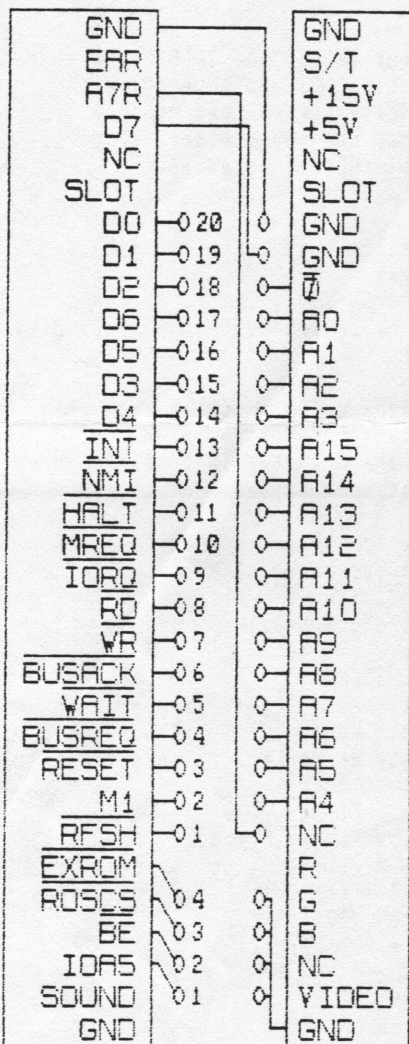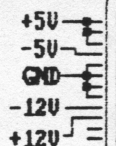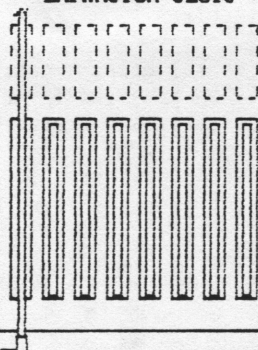| 2068	IBM	I/O	EDGE	IBM	2068
[GND]	[GND]	B1	A1	CH CK	$\overline{\text{NMI}}$
$\overline{\text{RESET}}$	RST DV	B2	A2	~D7	D7
[NC]	[+5V]	B3	A3	D6	D6
##	IRQ2	B4	A4	D5	D5
[NC]	[-5V]	B5	A5	D4	D4
$\overline{\text{BUSREQ}}$	DRQ2	B6	A6	D3	D3
[NC]	[-12V]	B7	A7	D2	D2
$\overline{\text{M1}}$	CD SEL	B8	A8	D1	D1
[NC]	[+12V]	B9	A9	D0	D0
[GND]	[GND]	B10	A10	CH RDY	$\overline{\text{WAIT}}$
$\overline{\text{MREQ}}$	MEMW	B11	A11	AEN	$\overline{\text{BUSACK}}$
$\overline{\text{IORQ}}$	MEMR	B12	A12	A19	*A19*
$\overline{\text{WR}}$	IOW	B13	A13	A18	*A18*
$\overline{\text{RD}}$	IOR	B14	A14	A17	*A17*
ROSCS	DACK3	B15	A15	A16	*A16*
$\overline{\text{HALT}}$	DRQ3	B16	A16	A15	A15
A7R	DACK1	B17	A17	A14	A14
$\overline{\text{BE}}$	DRQ1	B18	A18	A13	A13
$\overline{\text{RFSH}}$	$\overline{\text{DACK0}}$	B19	A19	A12	A12
$\overline{0}$	CLOCK	B20	A20	A11	A11
##	IRQ6	B21	A21	A10	A10
$\overline{\text{INT}}$	IRQ7	B22	A22	A9	A9
##	IRQ5	B23	A23	A8	A8
##	IRQ4	B24	A24	A7	A7
##	IRQ3	B25	A25	A6	A6
$\overline{\text{EXROM}}$	DACK2	B26	A26	A5	A5
$\overline{\text{IOA5}}$	T/C	B27	A27	A4	A4
NC	ALE	B28	A28	A3	A3
[NC]	[+5V]	B29	A29	A2	A2
NC	OSC	B30	A30	A1	A1
[GND]	[GND]	B31	A31	A0	A0

[] = EVEREX WIRED CONNECTION.

PRIMARY ADAPTER

TS2068 REAR CONNECTOR

RGB — TS20680 — 8 ... 40 TAKE-OFFS — EAR / S/T / +15 / +5 / GND

EXTENDER

CABLE ASSEMBLY

8 ... 40

IDC DIPS

CLIP TWO WIRES

IDE50 or IDS50

BUS DRIVER CARD

Cartridge

DAISY

EVEREX

Used if > 1ML

EVEREX EV-1085 EXPANSION SLOTS

PC/XT POWER SUPPLY

+5V
-5V
GND
-12V
+12V
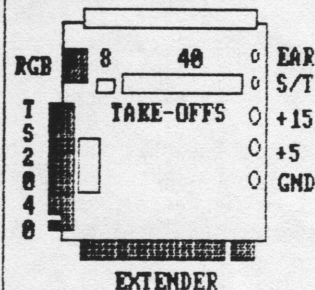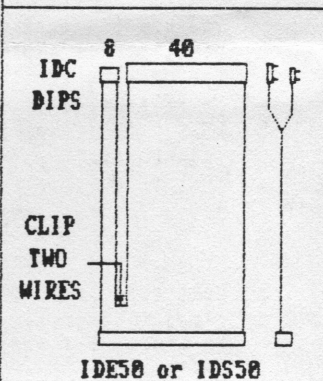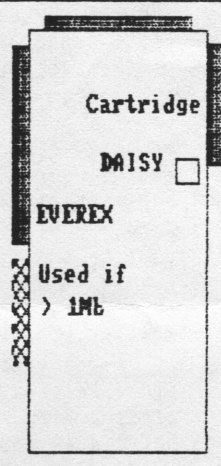
NOTES:

1. Card has same general layout for all applications.
2. Table shows connections used when IBM compatibility is not implemented.
3. New Cartridge slot **must** be used if bank switching is implemented. ($\overline{\text{BE}}$ conflict)
4. DAISY is for advanced WIDJUP autoconfiguring use.
5. User cards can have two edges, one for each system.

THE WIDJUP Co.

COMPONENT DESCRIPTIONS

1: THE 2068
If you don't have a 2068, I can probably provide a good used one. And if I can't, I can probably point you to someone who can. I can install Spectrum emulation for $15.00. This consists of a switch on the rear of the machine, which selects the 2068 or SPECTRUM half of a 32K internally-installed eprom.

If you send me your 2068 for this modification, I will UPS it back to you the day after I get it.

2: THE INTERFACE
This component contains the disc system BASIC command software, and handles data transfer between the 2068 and the controller.

The original ZEBRA interface is no longer available. The interface I sell is a redesigned unit which includes Spectrum capability (switch-selectable) and requires no twister. Use of the spectrum capability requires that the 2068 have Spectrum emulation of some sort.

The interface measures 2"H x 4.5"W and has a 64 pin bus connector on the front and rear. The D connector for the controller cable is on the right, rather than on top as on the original. The RESET and TIMEX/SPECTRUM switches are on the left side. The interface is hand-wired and comes in a nice case. The unit is hand-wired to keep the cost down; it's very expensive to make printed-circuit boards in small quantities. It takes me about 2 hours to hand-wire a type A interface.

There are two types of interfaces available: A and B. Type A does NOT include a printer interface. Type B includes an EPSON-compatible Centronics interface. It's a bit larger that the Type A unit: 3"H x 4-1/2"W. A detachable printer cable is included.

3: THE POWER SUPPLY
The original ZEBRA power supply is notoriously hot-running and troublesome, and it has NO trade in value as far as I'm concerned. I prefer to sell cool-running "switcher" power supplies. They are excellent despite their low price, but usually won't fit in a silver box. If you don't order a system cabinet, then your switcher will be provided in some sort of box, wood or metal. Most of the surplus supplies I buy are unboxed. I'm a woodworker, so I box them in wood. The boxes I make have a front-mounted switch and LED power-on indicator, and are adequately ventilated.

4: THE CONTROLLER
The controller is a special-purpose Z80 computer which controls data transfer between the 2068 and the disc drives. The controller also includes two serial RS232 ports.

A 16K controller is adequate if you do NOT want CP/M. A 64K controller is needed if you DO want CP/M. 64K controllers include a CP/M disc and CP/M documentation.

COMPONENT DESCRIPTIONS, Cont.

5: DISC DRIVES
Disc drives are, of course, the heart of the system. I use and recommend TEAC 3.5" 720K drives rather than Hitachi 3" drives, which are in very limited supply and hold very little data.

You can get by with only one drive, but I recommend two or more. You can always purchase more drives later, as needed. If you wish to transfer data from 3" to 3.5" and are unable to do so because you lack a 3" drive, you can send me your 3" discs and I'll do it for you at minimal cost. The CP/M BIOS can be modified to use 3.5" drives rather than 3" drives. Your 3.5" CP/M disc will contain the 3.5" BIOS.

6: CABINETS
There are two types of system cabinets available:

Type A is the original metal FDD3000 cabinet. I have only 3 of these as of 10-27-89. They have room for a power supply, controller and 2 drives (3" or 3.5"). This cabinet measures 15"W x 4"H x 7.5"D. Drives are horizontal.

Type B is a very pretty wood cabinet designed and constructed by yours truely. It can accomodate a power supply, controller, and up to FOUR drives (3" or 3.5" or 5.25"). This cabinet measures 13"W x 6"H x 8"D. Drives are vertical.

I will install your components in your cabinet at no charge. Your monitor can be placed on top of either cabinet.

7: SPECTRUM EMULATION
This is a very worthwhile option to have, since there is a great deal of excellent Spectrum software available. For more details, see "1: THE 2068".

8: THE PRINTER INTERFACE
If you plan to use a serial printer, then you don't need a printer interface, since you can use the controller's serial port. BUT BEWARE: many programs would need modification to work with this setup. I recommend you use an EPSON-type Centronics interface and an Epson-type printer for maximum compatibility with existing software.

I can supply an EPSON-compatible Centronics interface either as a separate unit, or built into the Type B ZEBRA interface.

9: THE LINGER BOARD
This is an RS232 terminal board. It can be used with CP/M to provide an excellent 80-column monochrome display (using your composite or TTL monitor) and excellent keyboard input, using an IBM-type keyboard. I also have plans (called SYS80) to modify the TIMEX and SPECTRUM ROMS for use with this board.

The LINGER board can emulate a great many different terminals. Please write or phone first if you are interested in the LINGER option. There is room in Cabinet B for this board, but not in Cabinet A. Write for a data sheet concerning the LINGER board!

PRICE LIST/ORDER BLANK 10-28-89

Please ship ASAP to:

DATE _____

_____

PHONE _____

_____

REF	PRICE	QTY	TOTALS	DESCRIPTION
1	$75.00	___	_____	T/S 2068 Computer
2A	45.00	___	_____	ZEBRA Interface, w. T/S switch
2B	70.00	___	_____	" with Centronics interface
3A	10.00	___	_____	Original ZEBRA power supply (lousy!)
3B	10.00	___	_____	Switcher power supply, boxed, varies
4A	30.00	___	_____	16K Controller
4B	50.00	___	_____	64K Controller with CP/M
5A	50.00	___	_____	ZEBRA 3" drive (SSDD40 HFD305SXA)
5B	70.00*	___	_____	TEAC 3.5" drive (DSDD80 720K)
6A	40.00	___	_____	ZEBRA FD3000 cabinet, 2 drives max
6B	40.00	___	_____	Jack's wood cabinet, 4 drives max
7	15.00	___	_____	Spectrum Emulation installation
8	40.00	___	_____	Stand-alone Centronics I/F (see #2B)
9A	80.00	___	_____	LINGER BOARD (kit form)
9B	120.00	___	_____	LINGER BOARD (assembled and tested)
10	40.00*	___	_____	IBM-type keyboard (for LINGER board)
(est)	5.00		_____	Shipping and handling
			_____	TOTAL ENCLOSED

*I can purchase these items for you at local computer swaps.
Price shown is what you should prepay. If I can get you a
bargain I will refund any excess. I will purchase only equipment
that is guaranteed by the seller. The seller's invoice and
address will accompany the item.

NOTE: All prices are subject to change. You will be notified of
any major changes before your order is filled.

POTENTIAL NEW MEMBERS

PLEASE COMPLETE THIS INTEREST
CARD BELOW AND SEND YOUR $15.00
MEMBERSHIP WITH YOUR CHOICE USER
GROUP TO:

AMERICAN MICRO SYSTEMS
2175 Abern Road #262
San Jose, CA   95121
(408) 270-9730

MEMBERSHIP INCLUDES FREE ACCESS
TO THE PDSE LIBRARIES AND A ONE
YEAR SUBSCRIPTION TO **TIMELINEZ**.

USER GROUP MEETINGS ARE ALWAYS
OPEN TO THE PUBLIC AT NO CHARGE.
GUESTS ARE HIGHLY ENCOURAGED TO
ATTEND.

HAPPY COMPUTING......THE EDITORS

NAME:_____

ADDRESS:_____

CITY:_____ STATE:____ ZIP:_____

PHONE:_____ WORK#:_____

HOW DID YOU HEAR ABOUT US?
    FEST_____ COMPUTER STORE_____

    NEWSPAPER/MAGAZINE_____

    MEMBER/FRIEND_____

Mini File Server BBS
Supports: 300/1200 baud at 8,N,1
Password: "fishwyfe"
Sysop: Steve Nichols
Phone#:   (408) 253-2295

Uetware Divisions
Supports: 300/1200/2400 baud at 7,1,E
Terminal: VT52
Sigop: Kevin Lueng
Phone#:   (415) 753-5265

NOTE: The Mini File
Server BBS has been
supporting the Unix
files system since
it's start. It is
strickly an U/D load
BBS via X-modem or
ASCII. For further
information, please
contact Bill Miller.

T S C Sig T C U   TIMEXsinclair Cambridge S.I.G.
The Computer Workshop
558 Cypress Avenue
Sunnyvale, CA 94086
(408) 739-3977

SIG Host: Mark Wahl

Meetings: Every Saturday morning at 10:00 am
             Stanford University
             Jordan Hall (in the Quad)
             Room 380C (downstairs)

Dates: February 3, 10, 17, 24, 1990
             March 3, 10, 17, 24, 31, 1990
             April 7, 14, 21, 28, 1990

LogOn Unlimited Bulletin Board System
TIMEXsinclair SPECIAL INTEREST GROUP (SIG)

SAN MATEO
Message base #10 - PDSE Library on Directory #50

**DUE TO A MAJOR LACK OF
INTEREST / SUPPORT**

**WE NO LONGER HAVE
THESE SERVICES AVAILABLE**

300/1200 baud - 8,N,1 - 7 phone lines - 24 hours
(408) 745-0880 - PC Pursuit available.
SIG OP: Mark Wahl

P U G   Peninsula User Group
311 Michelle Lane
Daly City, CA 94015
(415) 878-1773

President: George Mockridge
Host: Walt Johnson

Meetings: Third Sunday of each month, 1:30 pm
             Peninsula Hospital
             1783 El Camino Real
             Burlingame, CA

Support for:
-TIMEXsinclair's
 1000/1500/2068
-Cambridge Z88
-Sinclair's
 Spectrum +128K
 and GL

TO BE ANNOUNCED
↓ IN MARCH!

Dates: February 18, 1990   April T.B.A. (EASTER)
             March 18, 1990   May 20, 1990

T S S U U   TIMEXsinclair Cambridge Silicon Valley Users
6675 Clifford Drive
Cupertino, CA 95014
(408) 253-3175

Host: Bill Miller

Meetings: Third Wednesday of each month - 7:00 pm
             Cupertino Library   Bring your equipment
             Community Room   down access ramp
             10400 Torre Avenue   Leading to bottom of
             Cupertino, CA 95014   circular building

Dates: February 21, 1990. . . 3rd Wednesday
             March 27, 1990 . . . . 4th Tuesday
             April 18, 1990 . . . . 3rd Wednesday
             May 16, 1990 . . . . . 3rd Wednesday

TAS-BAM, INC.   Tampa and Suncoast Bay Area Micro-
computer Users' Group, Inc.
5956 46th Avenue North
Saint Petersburg, FL 33709
(813) 546-4278

Hosts: Eric Best, George Featherman, Warren Reed

Meetings: Second Saturday of each month, 7:30 pm
             Beach Federal Savings and Loan
             7777 North Seminole Blvd.
             Seminole, FL

Dates: February 10, 1990
             March 10, 1990
             April 14, 1990

PUG'S NEWSLETTER EXCHANGE

SNUG ROUND-UP
FEBRUARY 1990

All the PRINT # commands are to be a semi-colon, or by one or more apostrophes (SYM SHIFT 7), if blank lines are wanted.

Dr. Dreger's book informs that PRINT #2;" will print to the upper screen which is the same thing that PRINT also does. The next PRINT command "PRINT #3;" will send the printing to the printer. This can be either the 2040 printer or a full size printer as long as you have the printer driver loaded and initialized.

Is there a PRINT #4;? Yes, it is used by the "ZTALKER". It is the means by which words are entered to make the "ZTALKER" talk. However, some words do not sound right if spelled properly, so you might have to misspell them to get the "ZTALKER" to sound right.

THE RAMTOP
WINTER ISSUE 1989

S.M.U.G. SELLING DIGITIZER FOR THE TIMEXsinclair 2968!

If you ever wanted to put video pictures on your 2068, it can now be done. The SMUG group is now taking orders for digitizer boards in 2 forms. For one fully assembled, tested and shipped

right to your doorstep, the cost is only $49.95 plus $3.00 S/H. If you want the bare board and are electronically inclined, the cost is only $19.95 plus $3.00 S/H.

The price of the boards includes the hardware and software, is on cassette. The bare board also includes the schematic and parts list. Both boards have a leading edge connector and is ready for a mother board. If you want a feed through connector, like the AERCO, there is a $5.00 extra charge for this type connector. The turnaround time for these boards will be about 6-8 weeks. Please remit the amount with each order. You can send to

Sinclair Milwaukee Users Group
P.O. Box 101
Butler, WI 53007

If you want more info, write them on this club project.

THE PLOTTER - CCATS USERS GROUP
JANUARY 1990

MORE CAMBRIDGE NEWS:
We just found out that Sir Clive Sinclair of Cambridge Computers LTD. in Great Britian, will be releasing an MS-DOS based portable computer (under 4 pounds) in early 1990. The unit will include a 3.5" drive and a choice of a 20 or 40 Mbyte hard drive. We will have to wait and see what he comes up with this time!

January 1990

Mr. Donald S. Lambert
3310 Clover Drive S.W.
Cedar Rapids, IA 52404